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## ORIGINAL COMMUNICATIONS.

### PHYSIOLOGICAL ACTION OF LOBELINA.

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SOME time ago I made some experiments with about ten drops of this alkaloid, and arrived at the conclusion that it was an excitant of the peripheral vaso-motor system.* Since that time Messrs. Hance Bros. & White have had the kindness to furnish me with a larger quantity of the poison, made after the method of Procter. The acetate was a dark oily liquid in mass, but colored a watery solution yellow, had a birch-like odor, a tobacco-like taste, and did not contain any resin. It gave the following reactions, for which I am indebted to Mr. W. S. Sweeney, Assistant in Chemistry, Lafayette College: the watery solution gave with iodine in solution of iodide of potassium a bronze-red precipitate; with tannic acid a white precipitate, soluble in excess; with mercuric chloride a precipitate; with Nessler's reagent a pale-yellow precipitate, slightly soluble in excess; with chloride of gold a pale-yellow precipitate, insoluble in hydrochloric acid; and with nitrate of silver no precipitate. All the experiments were made with a solution containing in each cubic centimetre one drop of the alkaloid.

*Exp. I.*—Frog. At 1 P.M. received one drop of lobelina subcutaneously; respirations irregular and diminished; 1.05 P.M., sensibility seems increased, pupil contracted, losing power over anterior extremities; want of co-ordination. 1.07 P.M., one-half gtt. lobelina; lies perfectly quiet. 1.20 P.M., muscular twitching. 1.35 P.M., pupil greatly dilated. 1.48 P.M., death; motor nerves not irritable; muscles irritable; heart-beat twenty-four per minute; irritation of the pneumogastric does not stop it.

*Exp. II.*—Frog. At 10.42 A.M. received one-half gtt. of lobelina; pupil contracted. 10.57 A.M., power over anterior extremities lost; lies on abdomen. 11.12 A.M., dead; motor nerves not irritable; irritation of pneumogastric unable to stop the heart.

The foregoing experiments show that lobelina produces loss of voluntary movement and want of co-ordination, with destruction of irritability of motor nerves.

*Exp. III.*—Frog. At 10.15 A.M. received one gtt. lobelina subcutaneously, the right iliac artery and vein previously ligated. 10.20 A.M., relaxation coming on, co-ordination lost. 10.30 A.M., one-half gtt. lobelina; no respiratory movement; complete paralysis of posterior extremities; pinching brings out movements only in extremity whose blood-vessels are tied. 10.35 A.M., pupils dilating; convulsive movements of right posterior extremity. 10.53 A.M., death; sciatic on left side irritable at twelve centimetres, on right side at twenty centimetres, Dubois-Helmholtz's arrangement of induction apparatus; probe thrust down spine causes slight twitch in ligated extremity; heart pulsating forty per minute.

*Exp. IV.*—Frog. Received at 9.53 A.M. one gtt. lobelina; right iliac artery and vein tied previously; leaps away; want of co-ordination; pupil contracted; anterior extremities paralyzed; occasional respiratory movement. 10.15 A.M., convulsive movements of posterior extremities. 10.30 A.M., one-half gtt. lobelina. 10.32 A.M., pinching left foot causes movement only in right extremity. 10.35 A.M., pupil dilating. 10.45 A.M., death; left sciatic not irritable; right sciatic irritable at eighteen centimetres, Dubois's induction coil, Helmholtz's arrangement; heart-beat forty-four per minute.

In Experiments III. and IV. the action of the poison on one of the posterior extremities is prevented by ligation of the iliac artery and vein; the sensory nerves, spinal cord, and muscles retain their functions till death ensues.

*Exp. V.*—The gastrocnemii of a frog removed, and one placed in solution of distilled water, the other in solution of acetate of lobelina; their irritability was tested by Dubois's induction apparatus.

| Time. | Muscle in lobelina, sol. 1 gtt. to c.c. | Muscle in distilled water. |
|---|---|---|
| A.M. | | |
| 8.50.00 | 24.7 | 24.7 |
| 8.55.00 | 24.5 | 24.5 |
| 9.00.00 | 24.5 | 24.5 |
| 9.12.00 | 22. | 24.5 |
| 9.37.00 | 22. | 24.5 |
| 10.12.00 | Not irritable. | 24.5 |

Direct irritation of muscles placed directly in solution of lobelina shows that locally this poison has some power to destroy their irritability.

*Exp. VI.*—Small rabbit. At 4.11 P.M. received one gtt. lobelina per jugular; ran backwards, struggled, fell over on its side. 4.12 P.M., dead; heart beating.

*Exp. VII.*—Small rabbit. At 9.20 A.M. received one-tenth gtt. lobelina subcutaneously.

* Boston Medical Journal.

9.25 A.M., one-tenth gtt. subcutaneously. 9.34 A.M., has been moving about; now sits still, chewing; respirations slower. 9.40 A.M., one-tenth gtt. subcutaneously. 9.50 A.M., one-half gtt. subcutaneously; no particular action visible. 10.21 A.M., one gtt. per jugular towards heart; struggling takes place. 10.24 A.M., feet slide out from under him; respirations slower; sits quietly. 10.40 A.M., one-half gtt. per jugular; retching movement, falls over on side; convulsive movements, spasms of muscles about neck and jaws. 10.44 A.M., heart beating feebly; intestinal peristalsis present.

These experiments demonstrate that lobelina is mainly a respiratory poison.

CIRCULATION.

I made twenty experiments,—three on dogs and the remainder on rabbits; the same method was followed as detailed in paper on gelsemia. The pulse and pressure were noted for periods of fifteen seconds, except in Experiments VI., XI., and XII. Sulphate of morphia and sometimes chloroform were employed as narcotizing agents.

*Exp. I.*—Large dog. Carotid and jugular prepared.

| Time. | Pulse. | Pressure. | |
|---|---|---|---|
| A.M. | 19 | 156 | |
| | | | Lobelina gtt. 1. |
| 9.50.00 | 8 | 86 | |
| 9.50.15 | 9 | 129 | Struggling. |
| 9.50.30 | 11 | 188 | |
| 9.50.45 | 13 | 170 | |
| 9.56.00 | 35 | 74 | Artificial respiration. |
| 10.02.15 | 35 | 72 | |
| 10.12.30 | 42 | 86 | |
| 10.19.55 | 47 | 92 | Artificial respiration stopped, as animal began to breathe normally. |
| | | | Lobelina gtt. 1. |
| 10.20.15 | 44 | 92 | |
| 10.20.30 | 49 | 94 | |
| 10.20.45 | 49 | 100 | |
| 10.24.00 | 48 | 89 | |
| 10.30.30 | 46 | 88 | |

*Exp. II.*—Rabbit. Carotid and jugular prepared.

| Time. | Pulse. | Pressure. | |
|---|---|---|---|
| A.M. | 48 | 95 | |
| | | | Lobelina gtt. $\frac{1}{10}$. |
| 9.58.00 | 31 | 74 | Struggling. |
| 9.58.15 | 15 | 50 | Struggling. |
| 9.58.45 | 17 | 58 | Struggling. |
| 9.59.00 | 21 | 76 | |
| 9.59.15 | 26 | 102 | |
| 9.59.45 | 32 | 122 | |
| 10.00.45 | 33 | 126 | |
| 10.18.08 | 43 | 96 | |
| 10.34.58 | 43 | 94 | |
| | | | Lobelina gtt. $\frac{1}{2}$. |
| 10.35.58 | 20 | 81 | Struggling. |
| 10.36.13 | 25 | 74 | Struggling. |
| 10.36.58 | 36 | 53 | Struggling. |
| 10.52.30 | 36 | 63 | |
| 10.53.15 | 38 | 64 | |
| 10.55.00 | | | Lobelina gtt. 1½. |
| 11.00.00 | | | Death. |

*Exp. III.*—Large rabbit. Carotid and jugular prepared.

| Time. | Pulse. | Pressure. | |
|---|---|---|---|
| A.M. | 79 | 150 | |
| | | | Lobelina gtt. $\frac{1}{2}$. |
| 12.22.30 | 69 | 160 | |
| 12.22.45 | 65 | 154 | |
| 12.23.00 | 61 | 123 | |
| 12.23.30 | 70 | 98 | |
| 12.27.00 | 64 | 138 | |
| 12.37.00 | 52 | 104 | |
| | | | Lobelina gtt. $\frac{1}{2}$. |
| 12.37.15 | 40 | 82 | |
| 12.37.45 | 60 | 40 | |
| 12.39.23 | 108 | 66 | |
| 12.40.30 | 115 | 42 | |
| 12.40.45 | 120 | 36 | |
| 12.41.00 | | | Death. |

It is evident that this poison in dogs and rabbits causes a temporary fall of pulse and pressure, succeeded by a rise of pressure much beyond normal, and increase of pulse-rate sometimes beyond normal. In some cases in rabbits there is a preliminary rise of pressure for a few seconds before the incipient fall.

The pulse sometimes immediately preceding death runs with enormous rapidity.

*Exp. IV.*—Rabbit. Vagi cut; carotid and jugular prepared; no artificial circulation.

| Time. | Pulse. | Pressure. | |
|---|---|---|---|
| A.M. | 56 | 112 | |
| | | | Lobelina gtt. $\frac{1}{2}$. |
| 9.50.00 | 63 | 116–106–124 | |
| 9.50.15 | 66 | 125 | |
| 9.50.30 | 68 | 128 | |
| 9.51.15 | 48 | 112 | |
| 9.52.30 | 61 | 110 | Struggling. |
| 10.20.45 | 53 | 120 | |
| | | | Lobelina gtt. $\frac{1}{2}$. |
| 10.21.05 | 71 | 138 | Struggling. |
| 10.21.20 | 50 | 161 | |
| 10.21.35 | 55 | 170 | |
| 10.22.15 | 60 | 160 | |
| 10.26.23 | 55 | 132 | |
| | | | Lobelina gtt. 1. |
| 10.26.45 | 42 | 136–118 | |
| 10.27.00 | 50 | 136 | Struggling. |
| 10.37.00 | 61 | 120 | |

*Exp. V.*—Rabbit. Pneumogastrics paralyzed by atropin, curare; artificial respiration.

| Time. | Pulse. | Pressure. | |
|---|---|---|---|
| A.M. | 61 | 106 | |
| | | | Lobelina gtt. $\frac{1}{2}$. |
| 10.01.15 | 44 | 131 | |
| 10.01.30 | 47 | 172 | |
| 10.01.45 | 60 | 170 | |
| 10.04.15 | 50 | 102 | |

| Time. | Pulse. | Pressure. | |
|---|---|---|---|
| 10.08.34 | 59 | 98 | |
| | | | Lobelina gtt. ½. |
| 10.09.00 | 45 | 84 | |
| 10.13.55 | 26 | 86 | |
| 10.14.10 | 27 | 84 | |

*Exp. VI.*—Rabbit. Curarized; nicotin; vagi completely paralyzed, as tested by strong currents.

| Time. | Pulse. | Pressure. | |
|---|---|---|---|
| P.M. | 126 | 40 | |
| | | | Lobelina gtt. ⅛. |
| 2.15.00 | 106 | 44–34 | |
| 2.15.30 | 92 | 30 | |
| 2.16.00 | 90 | 26 | |
| 2.17.30 | 121 | 25 | |
| 2.21.00 | 130 | 27 | |
| 2.21.30 | 144 | 30 | |

Section of the pneumogastrics, paralysis of them by atropin and nicotin, did not prevent the same sequence of events from taking place, except that in the experiment with nicotin the blood-pressure rose very little.

These experiments show that the cause of fall of pressure and pulse has not its seat in an excitation of either the centre of the pneumogastrics or their peripheral ganglia.

This leaves us only the excito-motor ganglia in the heart as the seat of this action. As the voluntary muscles are but little or not at all affected by the poison, it is presumed the cardiac muscle does not suffer much change. To my mind, if it is true that atropin paralyzes all the inhibitory ganglia situated in the heart, it must be concluded that the whole dose falling on the heart through injection in the jugular diminishes the excitability of the cardio-motor ganglia, but when this dose is sent out mixed and divided in the circulatory fluid, the ganglia recover themselves and return to their normal state.

*Exp. VII.*—Rabbit. Vagi cut; curare; artificial respiration.

| Time. | Pulse. | Pressure. | |
|---|---|---|---|
| P.M. | 63 | 100 | |
| | | | Lobelina gtt. ½. |
| 4.31.15 | 52 | 128 | |
| 4.31.30 | 63 | 123 | |
| 4.34.45 | 61 | 100 | |
| 4.35.15 | | | Lobelina gtt. 1. |
| 4.41.37 | 61 | 102 | |
| | | | Lobelina gtt. 1. |
| 4.41.52 | 56 | 76 | |
| 4.42.07 | 23 | 60 | |
| 4.42.22 | 24 | 44 | |
| 4.42.37 | 32 | 50 | Vagus irritated at zero, Dubois's coil for thirteen sec. |
| 4.48.30 | 58 | 116 | |
| 4.56.30 | 61 | 104 | |

*Exp. VIII.*—Large Angora rabbit, vagus prepared. 11.32 A.M., secondary coil pushed up to seven centimetres; stops the heart; needle pushed into heart. 11.34 A.M., one gtt. lobelina per jugular; struggling. 11.37 A.M., coil at 7 c. does not stop heart. 11.38 A.M., animal dead; coil shoved over primary has no influence on the heart.

Experiments VII. and VIII. demonstrate that lobelina in large doses at length paralyzes the pneumogastrics. The same effect has been verified on the frog's heart.

*Exp. IX.*—Rabbit. Curare; vagi cut; artificial respiration; Ludwig's screw electrode in atlas and occiput.

| Time. | Pulse. | Pressure. | |
|---|---|---|---|
| A.M. | 70 | 121 | |
| | | | Lobelina gtt. ½. |
| 9.50.00 | 66 | 145 | |
| 9.50.30 | 66 | 120 | |
| 9.51.00 | 56 | 94 | |
| 9.52.15 | 65 | 86 | |
| 10.00.45 | | | Lobelina gtt. ½. |
| 10.07.45 | | | Lobelina gtt. ½. |
| 10.25.00 | 64 | 94 | |
| 10.29.30 | 54 | 62 | |
| 10.29.45 | 54 | 61 | Sciatic irritated at zero, Dubois's coil for seven seconds. |
| 10.30.45 | | | Lobelina gtt. ½. |
| 10.34.45 | 56 | 46 | |
| 10.35.00 | 60 | 46 | Vaso-motor centre directly irritated at zero, Dubois's coil for eight seconds. |
| 10.37.53 | 54 | 48 | |

This experiment shows that lobelina paralyzes the vaso-motor centre, as proved by direct and indirect irritation. Large doses, however, are necessary to accomplish this.

*Exp. X.*—Small rabbit. All cardiac nerves in the neck cut; cord severed between atlas and occiput; hemorrhage checked by bovista; curare; artificial respiration.

| Time. | Pulse. | Pressure. | |
|---|---|---|---|
| A.M. | 41 | 14 | |
| | | | Lobelina gtt. ½. |
| 10.08.00 | 41 | 15 | |
| 10.08.15 | 39 | 16 | |
| 10.08.30 | 40 | 20 | |
| 10.08.45 | 39 | 20 | |
| 10.09.00 | 38 | 20 | |
| 10.09.15 | 37 | 18 | |
| 10.09.30 | 39 | 16 | |
| 10.12.30 | 34 | 14 | |

*Exp. XI.*—Rabbit. Curarized; all cardiac nerves in the neck are cut; cord cut between atlas and occiput, verified by post-mortem; bleeding staunched by bovista.

| Time. | Pulse. | Pressure. | |
|---|---|---|---|
| A.M. | 130 | 25 | |
| 10.00.00 | | | Lobelina gtt. ⅛. |
| 10.40.00 | 106 | 30 | |

| Time. | Pulse. | Pressure. |
|---|---|---|
| 10.40.30 | 91 | 40 |
| 10.45.30 | 124 | 30 |
| 10.46.00 | 140 | 32 |

In Experiments X. and XI., where the sympathetics, pneumogastrics, and depressors of Ludwig and Lyon are divided, and section of the cord between the atlas and occiput, which removes the influence of the vaso-motor centre and the accelerator nerves, there is still a rise of pressure after the introduction of lobelina. As already noted, the rise is very slight and momentary after large doses of nicotin, which Rosenthal states paralyzes the peripheral vaso-motor system. According to Profs. T. Lauder-Brunton and H. C. Wood, Jr., nitrite of amyl is an agent which is able to paralyze the peripheral vaso-motor system. With this view the following experiment was made.

*Exp. XII.*—Rabbit. Curarized; nitrite of amyl administered by a flask whose stopper was so arranged that by turning it a quarter of a circle one could at pleasure admit or exclude the amyl from the inhaled air.

| Time. | Pulse. | Pressure. | |
|---|---|---|---|
| A.M. | 159 | 28 | One minute and twenty-nine seconds after end of inhalation of amyl. Lobelina gtt. $\frac{4}{5}$. |
| 10.30.08 | 147 | 28 | |
| 10.30.30 | 154 | 26 | |
| 10.31.00 | 159 | 32 | Amyl inhaled for thirty seconds. |
| 10.36.30 | 163 | 30 | |
| 10.47.00 | 167 | 32 | Amyl inhaled for nineteen seconds. Lobelina gtt. $\frac{4}{5}$. |
| 10.48.49 | 160 | 28 | |
| 10.49.19 | 156 | 30 | |
| 10.49.49 | 157 | 28 | |
| 10.50.49 | 144 | 24 | |
| 10.53.19 | 162 | 32 | |
| 11.00.30 | 136 | 46 | |

As will be seen by an examination of the above experiment, the rise of pressure is unimportant. Now, this experiment does not prevent the heart from producing a rise of pressure if the cause was seated in it. But this poison may cause the rise by an action on the spinal vaso-motor centres, like strychnia, or by a tetanus of the intestinal canal, like calabar bean. In several rabbits, upon whom tracheotomy and section of cord was made between the occiput and atlas, when lobelina was injected towards the heart through the jugular, I saw little or no intestinal tetanus, like that I have seen produced by nicotin: so that this cause must be excluded. Whether it acts on the spinal vaso-motor centres or on the peripheral vaso-motor system, nitrite of amyl can afford no decisive proof. Lobelina is no tetanic agent like strychnia, which would cause one to presume it had no great action on the spinal vaso-motor centres. In fact, after section of cord and artificial respiration kept up, I never have seen at most but a few tremors. The similarity of action of lobelina to that of nicotin, which, in small doses, has been proved by Ludwig and Mosso, with the plethysmograph, to contract the walls of the blood-vessels in an excised organ, leads to the inference that lobelina elevates the pressure by a peripheral vaso-motor action.

Yet in a single experiment where the splanchnics were cut, I had but a rise of two millimetres in the pressure.

*Exp. XIII.*—Rabbit. Carotid and jugular prepared; splanchnics cut.

| Time. | Pulse. | Pressure. | |
|---|---|---|---|
| A.M. | 51 | 44 | Lobelina gtt. $\frac{1}{2}$. |
| 3.50.15 | 44 | 46–30 | |
| 3.50.30 | 20 | 40 | Struggling. |
| 3.50.45 | 24 | 46 | |
| 3.51.00 | 28 | 40 | |
| 3.51.15 | 37 | 43 | |
| 3.51.30 | 51 | 36 | |
| 3.51.45 | 59 | 34 | |
| 4.02.00 | 40 | 22 | |

This experiment would seem to prove that the rise of pressure is due to an action on the spinal vaso-motor centres. So the most that can be said at present is that it raises the pressure either by a spinal vaso-motor action or by an action on the peripheral vaso-motor system.

### RESPIRATION AND TEMPERATURE.

*Exp. I.*—Rabbit. T-shaped canula in trachea; Marey's polygrath registering the respiratory movements. Mr. Hunt assisting.

| Time. | Resp. | Rectal Temp. | |
|---|---|---|---|
| P.M. | 24 | 38.4° Celsius. | Lobelina gtt. $\frac{1}{2}$. |
| 2.20.00 | 23 | | Struggling. |
| 2.20.15 | 38 | | |
| 2.20.45 | 45 | | |
| 2.21.00 | 41 | | |
| 2.21.15 | 21 | | Struggling. |
| 2.21.30 | 26 | | Struggling. |
| 2.22.15 | 29 | 38.5° | |
| 2.26.30 | 32 | 38.3° | |
| 2.34.45 | 29 | 37.9° | |
| 2.44.00 | 10 | 37.5° | |
| 2.50.01 | | 37.1° | Lobelina gtt. $\frac{1}{2}$. |
| 2.55.00 | | | Death. |

*Exp. II.*—Rabbit. Vagi cut.

| Time. A.M. | Resp. | Rectal Temp. |
|---|---|---|
| | 10 | 38° Celsius. |
| | | Lobelina gtt. ½. |
| 10.50.00 | 9 | Struggling. |
| 10.50.15 | 7 | Struggling. |
| 10.50.30 | 7 | |
| 10.50.45 | 7 | 38.3° |
| 10.54.15 | 6 | 38.1° |
| 10.55.15 | 5 | 37.6° |
| 11.10.00 | 7 | 35.1° |

Lobelina increases and then depresses the respiratory action. This increase does not take place after section of the vagi. Now, changes in the number of respirations can be produced by an action on the centres in the medulla, or the endings of the pneumogastrics in the lungs, by psychical state, and by aeration of the blood. The two latter could not cause this great variation, but irritation of the peripheral ends of the vagi in the lungs could, and section of them should prevent it, which I have shown takes place.

The temperature at first increases and then falls. Change in temperature must occur, either from an action upon the heat-centre of Prof. H. C. Wood, the processes generating heat, or by diminished radiation. I incline to the view that the contraction of capillaries during the rise of pressure prevents decreased radiation and thus increases temperature, whilst their subsequent dilatation during the fall of pressure produces fall of temperature by increased power of radiation.

It is quite possible that the convulsive struggles may cause the elevation.

Part of the above experiments were made in the laboratory of Prof. Bowditch, Harvard Medical School, to whom I wish here to express my warmest obligations.

The following expresses the conclusions in regard to lobelina:

1. Lobelina, like nicotina and conia, paralyzes the motor nerves.

2. Lobelina does not destroy the functions of the sensory nerves or the striated muscles.

3. Lobelina, nicotina, and conia depress the excitability of the spinal cord.

4. Lobelina destroys voluntary movement and co-ordinating power.

5. It temporarily decreases the pulse, followed by a subsequent increase, often beyond normal. Nicotina does the same. Lautenbach states that conia increases the heart-beat.

6. This action on the pulse is due to an action on the cardio-motor ganglia, provided that atropin paralyzes the cardio-inhibitory ganglia.

7. Lobelina, nicotina, and conia temporarily decrease the pressure, followed by a rise much beyond normal.

8. This increase of pressure is due either to a peripheral vaso-motor action, or to an excitation of the spinal vaso-motor centres.

9. Lobelina, nicotina, and conia paralyze the pneumogastrics.

10. In large doses it paralyzes the vaso-motor centre, both to direct and to indirect irritation.

12. Lobelina, nicotina, and conia accelerate the respiratory movements.

13. After section of the vagi, lobelina and conia cause no increase of respiratory movements.

14. It increases and then decreases the temperature; nicotina and conia decrease the temperature.

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## THE MECHANISM OF THE SHOULDER-JOINT; WITH SOME POINTS OF PRACTICAL INTEREST.

BY OSCAR H. ALLIS, M.D.,

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*Read before the Philadelphia County Medical Society.*

THE shoulder-joint is, perhaps, the most remarkable of all the articulations. Its strength, security, and extensive range of motion attest the high rank in the scale of being designed for its possessor.

The wonderful mechanism of this joint challenges our highest admiration, and I trust it will not be uninteresting if I recall some anatomical features of the bones forming it.

The shape of the scapula differs in the vertebrate series according to the size and habits of the animal, and according to the purpose it subserves.

In all, however, it is rudely triangular. In the quadrupeds, where fleetness and strength are combined, we find the shortest border approximating the vertebra, while the greatest length of the bone is from this border to the socket. This contrivance gives great advantage to the muscles that rise from it to insert upon the great projections on the humerus, and enables them to act both in holding the bones together and as important factors in locomotion.

But most of the quadrupeds are non-claviculate, and enjoy scarcely any other motion than that of extension and flexion.

In man, the longest border of the scapula is its vertebral; this subserves many important ends, and, among them, that of protection to an otherwise vulnerable part of the chest,—the arm and forearm serving as protectors to the side and in front.

For a bone of its size, it is the lightest bone in the body. Much of it in the infra- and supra-spinous fossæ consists of a single layer of compact tissue, and is so thin that one can through it distinctly trace the characters of the printed page.

At the socket, however, where its greatest strength is required, we have strong converging elements. Thus, the coracoid process gives great strength to its upper half, and the inferior border supplies the requisite strength for its lower half, while at right angles to the socket, and running from it to the entire width of the bone, we have the strong thick spine. Thus, any force exerted against the socket will be immediately transmitted to the most resisting parts of the bone, and by them distributed to its entire surface; and this, together with the fact that it is a movable bone, explains why fractures of the socket, neck, and body of the scapula are so rare,—when the force is transmitted through the humerus.

Having noticed the great strength, let me direct your attention to the shape and structure of the socket, or glenoid fossa.

And first, notice its extreme shallowness. The head of the *humerus* is in no sense received into it, but merely touches it, and that only in a very small extent. There is a marked contrast between the shoulder and hip in this particular, for the head of the latter is *more than half* received into the bony and cartilaginous socket, so that even after all the muscles and *all* the ligaments have been removed, it will require the weight of several pounds to draw it from its position.

But the shallowness of the joint permits of a far greater range of motion than that of the hip, and the surprise is not that dislocations happen, but that they are so rare. The higher claviculate animals only have this great range of motion, while in the horse, for instance, which possesses no clavicle, dislocation is more infrequent in the fore than in the hind limbs. The clavicle, then, by fixing the shoulder, gives it its great latitude of motion, and greatly increases the liability to dislocation.

The socket is *never spherical.* It is always somewhat oval, and its *long diameter* corresponds to the motion of flexion and extension in the quadrupeds, and, in length, equals very nearly the diameter of the head of the humerus. This enables the strong flexors and extensors that have their insertions at the extremities of the socket to exert a powerful influence in keeping the bone always in its place.

I will assign a reason for the socket being narrow in one of its diameters, but you are not required to accept it as the right one. I have called your attention to the extreme thinness of the bone in the supra- and infra-spinous fossæ. If a section of the bone is made through the latter, for instance, and directed through the socket, it will present a wedge-shaped appearance, with its base (or socket) resting on the head of the humerus. Such an arrangement enables the muscles upon both sides of the scapula (Fig. 1) to act most advantageously upon the head of the humerus, both for holding the parts in constant apposition, and in harmonizing their movements. The socket is deepened by a cartilaginous rim, which contributes materially to the security of the articulation without presenting an obstacle to its freest motion. A still further purpose is found in its acting as a bumper in case of shock.

Fig. 1.

External to this, and attached to the bony margin of the socket, is the *capsular ligament.* This is merely an encapsulating membrane, and chiefly designed to retain the synovia. But, while it is in itself a thin, feeble membrane, it becomes a thick and strong one by the attachment to it of the five or six muscles that converge upon the head of the humerus. These muscles, whose principal insertion is upon the head of the humerus, become blended together just before their insertion, and are all so intimately connected with the capsular ligament that they control its various foldings. It matters not in what position the arm is placed, some part of the large spacious

capsular ligament is folded, and these folds would pass into the articulation, become pinched, and render the joint insecure, were it not for the control these muscles have over it.*

We have, then, three structures, immediately in connection with the joint, and all contributing to its security,—viz., the glenoid cartilage, the capsular ligament, and the tendons of the scapular muscles.

I will now pass to the muscles of the shoulder; these I shall arrange in three classes:

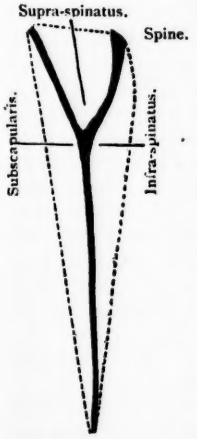
1. Those designed to guard the joints, keep the bones in apposition, and prevent dislocation.

2. Those designed to act upon the *scapula* and adapt it to the movements of the humerus.

3. Those designed to move the arm.

This classification has been made merely for the convenience of description, and cannot be strictly borne out in detail. There are but few muscles in the body that have but a single action. The superior oblique of the eye, acting as it does through a loop, can have but one influence: but in the groups of muscles about the shoulder each in turn plays a principal and a subordinate rôle, sometimes assisting and sometimes antagonizing the action of others, and it would be very difficult to set precise actions to any of them. This division will serve my purpose, and I therefore adopt it.

FIG. 2.

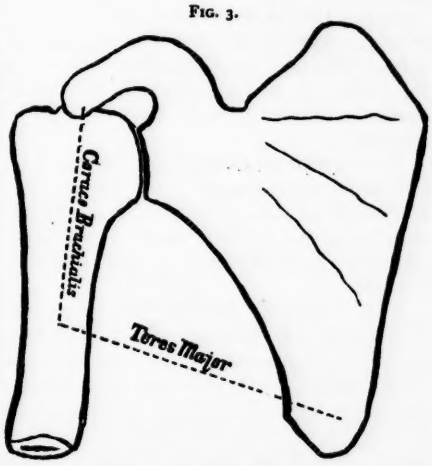



The muscles of the first group, viz., those designed to prevent dislocation, are the supra-spinatus, infra-spinatus, teres minor, and subscapularis, with the biceps and triceps. The first four spring from the scapula; I have already hinted at their efficiency (Fig. 1) in speaking of the shape of the socket. I will here show you that the greatest thickness of these muscles corresponds to the point where their greatest strength is required. By reference to Fig. 2 it will be seen that a section of the scapula has been made. At the point where the spine is grafted upon the body of the bone, we find (*a*) *the greatest strength of the bone*, (*b*) *the greatest depth of the muscular fossæ*, (*c*) *and the true axis of the scapula, arouna which all motions of the humerus take place.* A little reflection will show how admirably these strong muscles, acting in deep bony fossæ, can fix the head of the bone, and render dislocation very difficult. These are the main muscles in the horse, and their efficiency has already been noticed.

Secondly, those designed to act upon the *scapula* and adapt it to the *movements of the humerus*. Certain of the muscles of the shoulder are designed to harmonize the movements of the bones, as it is quite evident that, *cæteris paribus*, were the scapula fixed, dislocations would be more frequent than they are.

This is accomplished in part by two muscles,—the teres major and the coraco-brachialis. At a point about three inches

FIG. 3.




from the head of the humerus these two muscles proceed to the extreme points of the scapula; the one going to the tip of the coracoid process, the other going to the lowermost angle of the bone. The teres is a large strong muscle, but the coraco-brachialis is reinforced by the biceps, so that both strong muscles can act as adjusters whenever the arm would otherwise tend to move away from its socket.†

* This may account for the sudden pain in a joint, as if out of place, which is relieved by manipulation, and often disappears in sleep.

† Many other muscles may be added to this group. The pectoralis minor, near the socket, with three strong muscles at the back and upper angle of the scapula.

The manner in which the arm is brought into motion, with capability for various and complex manœuvres, is surprisingly simple. It is mainly performed by the great pectoral, deltoid, and latissimus dorsi, — three muscles, somewhat fan-shaped, which converge to nearly the same point on the humerus. Beginning at the lower part of the sternum, these muscles can be traced almost without interruption along it, the clavicle, spine of the scapula, and vertebral column, to the pelvis.

The deltoid is the chief muscle in abduction. It is most advantageously inserted upon the outside of the humerus, about four inches from the socket. It is, of course, absent in the non-claviculate animals. With its use man is given a range and series of movements denied to the quadrupeds.

The great pectoral is the principal one in this group for extension, prehension, and defence. It has an insertion closely allied to the latissimus dorsi, and, when the two act together, the arm is rotated inward. By the single or combined action of these muscles we have flexion, extension, abduction or adduction, and when the influence passes from one bundle of muscular fibre to another, we have circumduction.

Thus it will be seen that we cannot have the simplest movement of the arm without a concert of action with at least twelve muscles acting in most perfect harmony, and all in obedience to one common thought.

Such is a very hurried and imperfect account of the muscles about the joint, and of the manner in which they secure it from luxation. It is only when the muscles are off their guard, or taken by surprise, as in falls, blows, etc., that dislocation takes place. When the muscles are wide awake to their duties, as in the most active employment of the day-laborer or in the gigantic efforts of the athlete, or the horse running with rider down steep declivities, then each muscle does its duty, and dislocation is almost unheard of.

But injuries to the shoulder and upper extremity are exceedingly frequent, and I now ask your attention to some practical inferences from the thoughts already expressed.

Given a *force sufficient to dislocate or fracture, and its direction—which is more likely to take place?*

First, let the force be transmitted through the arm when it lies by the side. In such a case, if dislocation were to take place at all it would be directly upwards; and this would be utterly out of the question while the muscles of the joint were in a healthy condition. Such a force as this would break the fore-arm or arm, or explode upon the acromion, coraco-acromial ligament, the coracoid, or the clavicle; and of all of these the parts most likely to yield would be the wrist, the condyles at the elbow, and the clavicle.

Indeed, a similar result will be most probable whenever the arm is at the side and the direction of the force is *upward, upward and backward, or upward and forward.*

Fracture of the acromion and clavicle would be far more frequent under such circumstances did not the muscles divide up the shock. The lower fibres of the pectoral and latissimus dorsi, the biceps, the subscapularis, and the infra-spinatus and teres minor, all, by the course of their fibres, check any upward tendency of the head of the humerus, and thus do not let the full force of the injury pass to the acromion process. The head of the humerus is made to hug the socket closely by the deltoid, which forms a cap for it for about three-fourths of its circumference.

Secondly, let a person fall forward, as upon the hands; in this position the head of the humerus comes more or less squarely against the head of the bone. In this position man becomes a four-footed animal, and, like this class, the scapula is placed in the position most favorable to resist great shock. During the slippery weather last winter, my friend Dr. Porter, and myself, at our respective clinics, had sometimes as many as forty injuries of the upper extremity at a clinic, and yet, although this weather continued for nearly six weeks and hundreds came for injuries to the upper extremity, neither of us saw a dislocation at the shoulder. The force may break both bones of the fore-arm,—the condyle, the clavicle, or all together,—but the shoulder, by its own peculiar strength and mechanism, wonderfully escapes displacement.

In two cases of dislocation into the axilla, both persons fell upon the upper part of the humerus, thus driving the arm downward and inward. It is said that, when the elbow is carried from the body

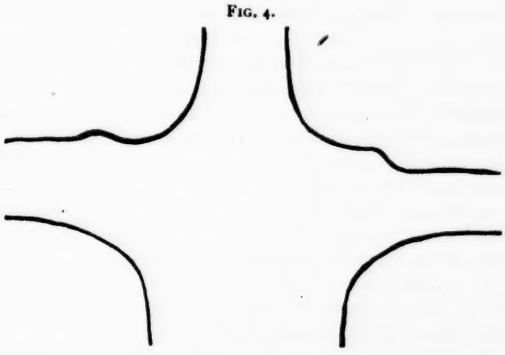
and fixed, the lower fibres of the pectoralis major and latissimus dorsi may produce dislocation. Cruveilhier states that the scapula does not move when the arm is abducted, and asserts this as the principal reason why axillary dislocations are so frequent.

I have no means of proving that no other than downward displacements ever take place, but I am fully persuaded that the so-called *thoracic* and *scapular* varieties are, in most instances, *primarily* axillary, and become thoracic or scapular from the unexpended force that produced the displacement. I should not state this so confidently did not clinical teachers and authors direct us to convert anterior and posterior displacements into axillary and then to reduce them in the usual way, and this would obviously be impossible had the exit of the bone not been into the axilla.

In all cases of dislocation there must be laceration of the soft parts. This may be merely a slight rent in the capsular ligament with a separation of the tendons heretofore mentioned, or, in extreme cases, some of these tendons or their fleshy parts are torn in two, with much additional injury to vessels and nerves. It is the possible extent of injury before the mind that prompts one to make a guarded prognosis. Cruveilhier mentions two cases where the biceps tendon had been ruptured; and there can be little doubt that the glenoid cartilage suffers at times, even though the long tendon of the biceps remains intact.

The amount of deformity in dislocation at the shoulder varies according to circumstances. If the person is very fat, or if the part is greatly swollen, the characteristic features of displacement may be absent. I know of six cases where the true injury was unobserved, in three of which it was discovered when too late for remedy. In a case that I saw, owing to the extreme corpulence of the individual, there was nothing to indicate (to the eye) a displacement but a ridge at the origin of the deltoid, with a slight dimple at its insertion. In thin persons the prominence of the acromion and flattened appearance of the deltoid are diagnostic; but when the part is swollen or fat, there is but little contrast between the shoulders. In most instances the patient will support the arm, or it will be supported by another, owing to the degree of pain caused by its hanging by the side. Besides the usual diagnostic points in dislocation, these two may at times be of service: 1. The *crease* at the *origin* of the deltoid, with the *dimple* at its *insertion*. 2. Owing to the fact that when the two arms hang by the side there is *sometimes* scarcely any appreciable deformity, it will be found to produce the greatest possible contrast between the two arms in *every variety* of displacement if they are placed at right angles to the trunk, as shown in the diagram,—Fig. 4. This latter position will serve also to indicate its restoration.

FIG. 4.



1328 SPRUCE STREET.

## NOTES OF HOSPITAL PRACTICE.

*SERVICE OF PROF. DUCHEK, AT THE ALLGEMEINES KRANKENHAUS, VIENNA.*

Reported by B. F. LAUTENBACH, M.D.

*TUMORES CEREBRI, INVOLVING THE LEFT MOTOR OCULI AND OPTIC NERVES.*

THE case which I am about to present to you this morning is that of a man aged 37, who in 1859 contracted a hard chancre, which was soon followed by secondary symptoms, the entire disease apparently disappearing within the same year. About one year ago he was attacked by the following group of symptoms: double sight, vertigo, vomiting, and cephalalgia. The first symptom observed by the patient was that his left eyeball was drawn towards the right, *i.e.*, strabismus convergens; this was, however, soon replaced by strabismus divergens. Under treatment his trouble disappeared, but it recommenced in August again, continuing until the present time (October 14). On examining the patient critically, we find no eruption on the skin,

and, with the exception of a single instance in the right axilla,—the result, probably, of some local irritation,—the lymphatic glands do not appear to be enlarged. There is no ulceration to be found in his throat, nor any excrescences about the anus, nor, in fact, are there any lesions discoverable which point to syphilis.

On examining the vicinity of the left eye, we find the left eyebrow raised higher than the right, the left upper eyelid hanging down over the eyeball (paralysis of the levator palpebræ superioris), ptosis palpebrarum. The patient is able to slightly open his eye by the combined action of muscles of the face and forehead. Though in the beginning the eyeball was directed inward, it is now constantly directed outward, showing that the recti muscles are paralyzed. Though able to distinguish objects, he complains of a mist which is constantly before his eyes; there is also mydriasis present (2‴). The symptoms of which the patient complains point to paralysis of the left motor oculi nerve, but there exists also atrophy of the optic nerve, as was discovered by means of the ophthalmoscope.

The patient came into the hospital therefore with a syphilitic history, but no syphilitic symptoms, complaining of vertigo, vomiting, frontal pain, and double sight, all symptoms which may occur either singly or together in a great variety of affections.

Vomiting, in brain-affections, is no longer given the same local signification that was formerly awarded to it. Brain-vomiting, as it is called, occurs in very many affections involving any division of the brain: it may occur in neuralgias; migraine, for instance, is not infrequently accompanied by vomiting. Though this be the case, it is no less true that vomiting occurs more frequently when the pneumogastrics are involved than when any other portion of the brain is diseased.

Vertigo, which was formerly one of the localized symptoms of brain-trouble, is now known to occur in a large number of diseases involving other organs; in diseases of the stomach, for instance, in the form of disease described by Trousseau as "vertigo a stomacho læso;" in diseases of the ear, not only in the disease of the internal ear, involving the meninges of the brain, known as Ménière's disease, but also in inflammation of the middle ear; these attacks of vertigo, which are often very decided, are said to be due to transference of irritation. This same transference occurs in spinal diseases, vertigo frequently occurring in the beginning of a tabes. Vertigo, however, is most common in diseases of the cerebrum and cerebellum, especially of the latter, when the cruri cerebelli are involved. In the case of our patient it is probably of peripheral origin, as it was observed that when the double sight was most marked the vertigo was excessive; but when we temporarily relieved the double sight, the vertigo disappeared.

Cephalalgia, to be of cerebral origin, must either be constant, or must always occur at the same time or under the same circumstances. In our patient it is constant.

Without the strabismus, the diagnosis in this case would be difficult; but this, in connection with the paralysis of the upper eyelid, could not occur with any other lesion than one involving the oculo-motor nerve; this lesion must be within the cranial cavity, as the muscles supplied by both the inferior and the superior divisions of the nerve are paralyzed. The fact that but one motor oculi is affected shows that the nerve is not involved before it leaves the crura cerebri, the two nerves lying so near each other that one could hardly be the seat of disease without the other being also diseased. We have therefore to do in this case with a probable tumor at the base of the brain, involving the left oculo-motor nerve between the cerebral crura and the sphenoidal fissure, in the beginning merely irritating the nerve, producing contraction of the muscles supplied by it, which contraction was observed as strabismus convergens; later, as the tumor developed, it destroyed the nerve, which, producing paralysis of the muscles supplied by the third nerve, delivered the eye over to the muscle (external rectus) supplied by the sixth nerve, producing strabismus divergens.

As was stated earlier in the lecture, there is atrophy of the left optic nerve. This cannot be referred to the same lesion that involves the third nerve, as we should then find more evidence of disease, through the pressure which so large a lesion would necessarily exert; but we must refer its occurrence to the development of multiple tumors. The lesions might be due to a chronic basilar meningitis; but the fact

that this disease is very rare, in connection with the old syphilitic history, has led me to form the diagnosis of tumores cerebri, resulting from growth occurring in what was at one time syphiloma: the patient probably having the syphilomata deposited soon after he contracted syphilis, these remaining latent until recently, when, from what cause we do not know, they began to grow.

Anatomists have shown us that in such cases the tumors no longer possess the characteristics of syphiloma, but are of a fibrinous character.

The prognosis, as regards the removal of the paralysis, is very bad, the oculo-motor nerve being almost certainly destroyed; and we possess no drug which will regenerate nerve-tissue.

The treatment will be symptomatic and etiological; for the present he will be placed on a gramme and a half (23½ grs.) of iodide of potassium, thrice daily, for a long period of time.

## TRANSLATIONS.

THE EMPLOYMENT OF PHOSPHORUS IN NERVOUS DISEASES (*Bulletin Général de Thérapeutique*, September 30, 1875).—Dr. E. Lemaire has made a large number of interesting and important observations in regard to the action of phosphorus in affections of the nervous system, and has come to the following conclusions:

1. In paralysis following acute disease or ataxo-adynamic fevers, phosphorus has no special action, but is only a tonic which may be used as an adjuvant to other drugs of the same class.

2. In paralysis due to an alteration of the blood (chlorosis or anæmia), or to a diminution of its bulk (hemorrhage), phosphorus has a very uncertain effect, which is, perhaps, that of a stimulant.

3. In paralysis caused by cerebral softening or hemorrhage of any extent, it is of no use.

4. In paralysis following a slight hemorrhage, it appears to aid and hasten the cure, even when the disease has had a protracted duration, as a year for example.

5. It seems to have no special effect in paralysis due to hysteria, cerebral tumors, or in old paraplegia caused by extensive sclerosis or softening.

6. In poisoning by mercury or bisulphide of carbon, it seems to be useful, but is without effect in cases of lead-poisoning.

7. In progressive locomotor ataxia, when the symptoms are not too general and the duration has not been too protracted, it appears to have a favorable influence, ameliorating but not curing the disease.

8. Generally speaking, phosphorus is a stimulant and a tonic to the nervous system, capable of benefiting but not of curing some nervous affections.

9. It may be employed whenever, in the cases already cited, there is entire absence of inflammation, of fever, and even of cerebral excitement, and when a chronic period has succeeded to the acute stage and all symptoms of irritation have disappeared. This rule is absolute, and to disregard it would be to risk seeing the disease aggravated and perhaps hurried to a fatal termination.

10. Its administration should be commenced with a very small dose, which can be gradually increased, remembering that it is a cumulative drug. At the least digestive trouble, such as gastralgia, vomiting, diarrhœa, etc., it should be immediately withdrawn, and not recommenced without great precautions. J. W. W.

THERAPEUTIC ACTION OF THE OIL OF ALEURITIS TRILOBA (*Bulletin Général de Thérapeutique*, September 30, 1875).—Dr. Oxamendi gives the therapeutic history of a new drug, which may prove to be a good substitute for castor oil. The Aleuritis triloba is a euphorbiaceous plant growing chiefly in India, where it is called *candle-nut tree* or *candle-berry*. But little has been published in regard to its therapeutic virtue.

Griffith, in his "Medical Botany," states that its fruit has been thought to be aphrodisiac when dried and taken in small doses, and laxative when used in a fresh state and in larger quantity.

Bouchardat says that the oil is purgative in doses of thirty grammes. Dr. Oxamendi has obtained similar results with a smaller dose. A half-ounce is sufficient to purge freely an adult. It is an excellent aperient, its effect on the intestinal canal being the same as that of castor oil. It is not at all disagreeable to take, tasting like hazel-nuts. It operates usually in about three hours, and without pain or colic. Its action is probably due to a special resin.

Dr. Oxamendi recommends the following mixture:

Oil of aleuritis triloba, f℥ss;
Gum arabic, ℥iii;
White sugar, ℥ss;
Water, f℥ss.

The dose for a child is two teaspoonfuls.

He has obtained good results in cases of obstinate constipation with abdominal pain, by making friction on the abdomen with a liniment consisting of

Oil of aleuritis triloba, f℥ss;
Tincture of cantharides, f℥iii;
Carbonate of ammonium, ℥iii.

J. W. W.

SALICYLIC ACID (*Bulletin Général de Thérapeutique*, September 30, 1875).—Professor Crédé has employed, at his obstetrical clinic at Leipsic, a solution composed of one part of salicylic acid to from twenty to sixty parts of distilled water, and a powder of one part of the acid and five of starch. He has used these as vaginal injections after delivery, in ulceration of the cervix following labor, and also as general disinfectants. The results have been so satisfactory that he particularly recommends this agent to all obstetricians.

Dr. Frontheim has tested the efficiency of salicylic acid in thirty-one cases of diphtheria, none of which died, and in none of which were there any renal complications. In only one case was there paralysis of the soft palate. Those patients who were most seriously attacked were cured in about eight days, the others in two, three, and four days. In the more serious cases he touched the diphtheritic patches every three or four hours with a sponge fastened on the end of a whalebone and dipped in a solution of salicylic acid. After each of these applications he also administered internally a teaspoonful of the same solution, which consisted of

Salicylic acid, grs. xxx;
Water, f℥v;
Alcohol, q. s.

He found that the salicylic acid appeared very rapidly in the urine, and gave a bluish violet reaction with the chloride of iron.

J. W. W.

GASTRO-PULMONARY FISTULA FOLLOWING AN ULCER OF THE STOMACH (*La France Médicale*, October 2, 1875).—The case is reported of a patient who had a mucopurulent expectoration which frequently contained alimentary substances. He suffered from extreme epigastric distention, which would disappear after each expectoration. The communication between the stomach and the lungs was produced as follows. The pyloric portion of the stomach was adherent to the liver on the level of the suspensory ligament; on the posterior wall of the pylorus there was a large perforation opening above, with a cavity in the body of the lung, full of air and putrid matters. This cavity was bounded in front and on the right by the thoracic walls, below by the liver, on the left by the stomach, above and behind by the diaphragm. This muscle was adherent to the pleura and the lung, and presented an opening similar to that which existed in the stomach.

The bronchiæ opening into this cavity of course supplied the means of communication with the trachea, and formed the passage along which the particles of food were carried before they were coughed up. Several ulcerating tumors were found in the stomach. J. W. W.

THE ORIGIN OF CARBUNCLE (*Centralblatt für Chir.*, No. 31, 1875).—Semmer states that in the residents of one house who had suffered more or less from numerous carbuncles he was led to trace the disease to the eating of mouldy sauerkraut. He found in the cores of the carbuncles a complicated plexus of fungus-filaments which were exactly like the mycelial threads of the cabbage. The spores of the mould are, though with some difficulty, destroyed by boiling-heat: hence the cabbage must have been eaten partly uncooked, and there had been an immigration of the mould-spores from the digestive tract into the blood. J. W. W.

THE NERVES OF THE LIVER.—Dr. Nesterowsky (*Virchow's Archiv*, Bd. 63, S. 412, 1875) has examined the livers of dogs and cats, making microscopic sections which were stained with chloride of gold. This method of demonstrating the nerves has proved very satisfactory in his hands. He has demonstrated a close net-work of fine nerve-fibres surrounding and accompanying the blood-vessels of the liver, particularly the hepatic artery. Certain nerve-fibres extend to the acini, where they anastomose and form loops; certain other fine nerve-fibres accompany the smaller capillaries, terminating in a similar manner. Nesterowsky does not find himself able to state the exact nature of these nerve-fibres, or whether they are medullated or non-medullated, except in the

case of the larger nerves. No ganglion-cells have been observed. Nesterowsky's results are in opposition to the views of Pflüger, who considers the liver-cells as in fact the terminal extremities of the finer nerve-fibres. X.

CASE OF EPILEPTIFORM NEURALGIA OF THE FACE TREATED BY SECTION OF THE INTERNAL AND EXTERNAL NASAL NERVES; ANÆSTHESIA PRODUCED BY THE INTRAVENOUS INJECTION OF CHLORAL.—At a recent meeting of the Académie des Sciences, M. Ore presented the following note.

The operation was performed upon a woman 57 years of age, who had suffered from the affection for nine years. Numerous medicines had been employed, with no effect. Dr. Landes had resected the sub-orbital and anterior dental nerves successively, with only temporary amelioration. The patient being refractory to chloroform, injections of chloral were employed. After 3.50 grms. had been injected, she commenced to become insensible. When four grms. had been injected, immobility was almost complete. By the time 4.50 grms. had been injected, twenty-five minutes from the beginning of the injection, insensibility was complete, and the operation was performed. Insensibility was perfect during the operation, and remained so for half an hour subsequently, when the patient fell asleep, and remained in this condition with short intervals for some hours. The next day no trace of the injection remained. Six days later the neuralgic pains in the eye had diminished considerably, and seemed to have localized themselves in the upper lid. Neither phlebitis, clot, nor hæmaturia was produced. —*Gaz. Méd. de Paris*, August 14, 1875.

X.

ALTERATIONS IN THE BRAIN IN TYPHOID FEVER AND TRAUMATIC INFLAMMATION.—Dr. Leo Popoff publishes in *Virchow's Archiv* (p. 421, v. 63, 1875) the results of certain investigations made in Von Recklinghausen's laboratory. According to Popoff, the changes in the brain in fevers have never been carefully investigated. The points usually noted in post-mortem examinations are the increased or diminished amount of blood in the brain, and the occurrence or absence of œdema. Some attach no weight to these conditions; others regard them as important. Other appearances have been found by Hoffman and others, such as yellow or brown pigmentary deposits, evidences of acute atrophy, etc.; but the facts observed in this direction have been so scanty that Popoff has been moved to make a new series of examinations (microscopic) upon twelve brains of patients dying of typhoid fever. He finds collections of cell-elements (wandering lymphatic corpuscles) in the perivascular spaces, particularly on the surface of the nerve-cells or in their neighborhood. Sometimes these corpuscles penetrate into the substance of the ganglion-cells, so that they even seem to exercise pressure upon the cell-nuclei. What the influence of the pressure thus exerted upon the ganglion-cells may be, can as yet be answered only in part. It seems probable, however, that the wandering cells are concerned in some way with the division and multiplication of the cell-nuclei. Cases in which inflammation of the brain from other causes had caused death were also examined. Where sclerosis existed, the above-mentioned appearances were not observed; but when purulent inflammation from caries of the petrous bone had occurred, the infiltration with wandering cells and the division of the nuclei of the ganglia were still more marked than in cases of fever.

A series of experiments in exciting artificial inflammation of the brain resulted similarly. Dr. P. also gives the result of certain injections of insoluble coloring-materials into the brain. X.

JUTE AS A SURGICAL DRESSING (Dr. B. Crédé: *Berliner Klin. Wochen.*, 1875, No. 35).—Jute, which is the fibre of the Corchorus capsularis, which grows in Bengal, impregnated with salicylic acid has been employed as a dressing by some of the advocates of the antiseptic method of dressing wounds, and it is claimed for it that it is eminently suitable, on account of its cheapness, and its allowing free escape of matter from wounds while affording complete antisepsis. W. A.

A POWDER FOR THE TREATMENT OF CORYZA (*Le Progrès Méd.*, October 2, 1875).—Van der Corput recommends that the following powder be employed once or twice daily in cases of obstinate coryza:

℞ Subnitrate of bismuth, ʒii;
Powdered benzoin, ʒi;
Muriate of morphia, gr. iss.
Mix, and make two powders.

J. W. W.

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, DECEMBER 11, 1875.

## EDITORIAL.

### INTERNATIONAL MEDICAL CONGRESS.

AFTER a very large expenditure of time and an almost unprecedented expenditure of nerve and respiratory force, the movement for an international meeting to be held here next year has crystallized into a definite, permanent form. The Centennial Medical Commission, it must be remembered, is, practically, a committee of arrangements. The president (Dr. S. D. Gross), vice-presidents, etc., upon the circular of the Commission are the officers of the Commission merely. When the Congress meets, it is to appoint its own officers. We sincerely hope that some distinguished foreigner, like Sir James Paget or Prof. Virchow, will fill the ruling chair. The addresses are to be delivered by Americans absolutely or almost exclusively, and there seems to us great danger that the prefix *inter* will have to be abolished. For the information of our readers we give the following extract, containing all the vital matter, from the official circular just published.

"Arrangements have been made for the holding of the Congress in the city of Philadelphia, to begin on the 4th and to terminate on the 9th of September, 1876. The Commission propose the following general plan for the organization and business of the Congress:

"I. The Congress shall consist of delegates, American and foreign, the former representing the American Medical Association and the State and Territorial Medical Societies of the Union; the latter the principal medical societies of other countries.

"II. The officers shall consist of a President, ten Vice-Presidents, four Secretaries, a Treasurer, and a Committee of Publication, to be elected by the Congress at its first session, on the report of a Committee of Nomination.

"III. The morning sessions of the Congress shall be devoted to general business and the reading of discourses; the afternoons to the meetings of the Sections, of which there shall be nine, viz.:

"1. Medicine, including Pathology, Pathological Anatomy, and Therapeutics.

"2. Biology, including Anatomy, Histology, Physiology, and Microscopy.

"3. Surgery.

"4. Dermatology and Syphilology.

"5. Obstetrics and Diseases of Women and Children.

"6. Chemistry, Toxicology, and Medical Jurisprudence.

"7. Sanitary Science, including Hygiene and Medical Statistics.

"8. Ophthalmology and Otology.

"9. Mental Diseases.

"IV. The language of the Congress shall be the English, but not to the exclusion of any other language in which members may be able to express themselves more fluently.

"Gentlemen intending to make communications upon scientific subjects will please notify the Commission at the earliest practicable date, in order that places may be assigned them on the programme.

"In order to impart to the Congress a thoroughly international character, invitations to send delegates will be extended to all the prominent medical societies in Europe, Mexico, the British Dominions, Central and South America, the Sandwich Islands, the East and West Indies, Australia, China, and Japan. Invitations will also be tendered to medical gentlemen of high scientific position; and distinguished visitors may be admitted to membership by a vote of the Congress.

"Among the advantages arising from such a convocation as this, not the least important will be the opportunity afforded its members for the interchange of friendly greetings, the formation of new acquaintances, and the renewal and cementing of old friendships.

"The Centennial Medical Commission tender in advance to their brethren in all parts of the world a cordial welcome, and a generous hospitality during their sojourn in the 'Centennial City.'

"The Congress will be formally opened at

noon, on Monday, the fourth day of September, 1876.

"The registration book will be open daily from Thursday, August 31, from 12 to 3 P.M., in the Hall of the College of Physicians, N. E. corner Thirteenth and Locust Streets. Credentials must in every case be presented.

"Gentlemen attending the Congress can have their correspondence directed to the care of the College of Physicians of Philadelphia, N. E. corner of Locust and Thirteenth Streets, Philadelphia, Pennsylvania.

"There is every reason to believe that there will be ample hotel accommodation for all strangers visiting Philadelphia in 1876. Further information may be obtained by addressing the Corresponding Secretaries.

"All communications must be addressed to the appropriate Secretaries.

"WILLIAM B. ATKINSON, 1400 Pine Street, Philadelphia, *Recording Secretary.*

"DANIEL G. BRINTON, 2027 Arch Street, WILLIAM GOODELL, Twentieth and Hamilton Streets, *American Corresponding Secretaries.*

"RICHARD J. DUNGLISON, 814 North Sixteenth Street, R. M. BERTOLET, 113 South Broad Street, *Foreign Corresponding Secretaries.*"

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"IN answer to an inquiry by some of the students of the Medical Department of the Michigan University, Prof. Palmer is reported to have said in substance, 'With Dr. Sager it was a question of only two hundred dollars, while with us (the faculty) it was a question of eighteen hundred dollars.' If there is any real foundation for this assertion, it would appear that the matter of principle is not the only one which has actuated the said faculty in the stand which they have taken. We sincerely hope that some reasonable excuse can be offered for lowering the dignity of the position assumed to the meanness of a pecuniary consideration."

It is a sign of the times that so cautious —we had almost said timid—a journal as the New York *Medical Record* has been in the past, should publish such an editorial. We would ask its editor, however, on what ground Prof. Palmer and his colleagues are to be blamed above other professors, even supposing what is said to be true. It is merely a question of dollars that stands between the professors all over the country and the reforms for which the profession is crying. At the worst, candor is the only peculiar sin of Prof. Palmer.—Who shall cast the first stone?

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## WARBURG'S TINCTURE.

NO one familiar with East Indian medical literature can have failed to have had his attention arrested by the extraordinary accounts of the action of a secret remedy—Warburg's tincture—as a sudorific and antipyretic. Dripping sheets; mattresses soaked through; pools of sweat upon the floor; violent tropical remittents broken up as by magic; soldiers and civilians, generals and privates, saved from imminent death by this nostrum;—such has been the testimony of numerous physicians of unquestioned skill and probity. We had always supposed the inventor and proprietor of this secret remedy to be an East Indian; but it appears that Dr. Warburg is a German, or at least is a practitioner formerly of Vienna, but now of London. By the advice of friends he has revealed its composition to Prof. Maclean, who, in the London *Lancet* of November 13, imparts his information to the profession. The famous Netley professor at the same time, speaking from large personal experience, attests the great value of the remedy, and especially its superiority to quinia. After affirming that many great engineering works in the deadly jungles of Southern India were brought to completion mainly by the aid of Warburg's tincture, he gives the following as the mode of administering and preparing it:

"The tincture is administered in the following manner: One half-ounce (half of a bottle) is given alone, without dilution, after the bowels have been evacuated by any convenient purgative, all drink being withheld; in three hours the other half of the bottle is administered in the same way. Soon afterwards, particularly in hot climates, profuse, but sel-

dom exhausting, perspiration is produced; this has a strong aromatic odor, which I have often detected about the patient and his room on the following day. With this there is a rapid decline of temperature, immediate abatement of frontal headache,—in a word, complete defervescence,—and it seldom happens that a second bottle is required. If so, the dose must be repeated as above. In very adynamic cases, if the sweating threatens to prove exhausting, nourishment in the shape of beef-tea, with the addition of Liebig's extract and some wine or brandy of good quality, may be required.

"In the terrible remittent fevers described by Livingstone and his followers, the form of purgative prescribed by the great traveller, and known to his people as 'Livingstone's Rousers,' may be premised. By no authors is the necessity for careful nutrition and due stimulation so much insisted on as by the companions of this immortal explorer, notably by the Rev. Mr. Waller, who, I believe, is a physician as well as a missionary.

"DR. WARBURG'S TINCTURE.

"℞ Aloes (Socotr.) libram,
Rad. rhei (East India),
Sem. angelicæ,
*Confect. damocratis, ana uncias quatuor;
Rad. Helenis (s. enulæ),
Croci sativj,
Sem. fœniculi,
†Cret. præparat., ana unc. duas;
Rad. gentianæ,
Rad. zedoariæ,
Pip. cubeb.,
Myrrh. elect.,
Camphoræ,
‡Boleti laricis, ana unciam.

"The above ingredients to be digested with five hundred ounces of proof spirit in a water-bath for twelve hours; then expressed and ten ounces of disulphate of quinine added; the mixture to be replaced in the water-bath till all quinine is dissolved. The liquor, when cool, is to be filtered, and is then fit for use."

* This confection, which consists of an immense variety of aromatic substances, was once officinal, and is to be found in the Ph. Lond., 1746.

† Dr. Warburg informs me that this ingredient was added to correct the otherwise extremely acrid taste of the tincture. Many other substances were tried, but none answered so well as prepared chalk.

‡ This is the Polyporus laricis (P. officinalis, Boletus purgans, or Larch agaric), "formerly," says Pereira, "used as a drastic purgative, and still kept by the herbalist."

THE frequenters of our Zoological Garden know that the collection is especially remarkable for the number and variety of its kangaroos, the various species of which have there obeyed most faithfully the Hebraic command to increase and multiply. It is stated that in France the efforts to acclimatize this animal have been very successful. Hundreds have been imported by the government for the Bois de Boulogne, large landed proprietors have stocked their estates with them, and kangaroo-hunting bids fair to grow into a national sport. Better than this, it is believed that a very useful addition has been made to the food-supply of the country, and it is affirmed that already, at the game-stores, kangaroo-meat is kept on sale as a great delicacy. Much of our Florida wilderness and various portions of our Southern States are, without doubt, well fitted to the kangaroo; and the government might well spare a few hundred dollars to add this champion hopper and breeder to our game resources.

A FEW copies of No. 127 of the *Philadelphia Medical Times* are badly wanted. Twenty-five cents each will be paid for them. Address Publishers.

## CORRESPONDENCE.

BALTIMORE, November 13, 1875.

THE American Public Health Association, which met here during this week, was not so numerously attended as might have been expected from the vast importance of the interests involved. Many valuable papers were, however, presented, which have been published at some length in the columns of the daily press, so that the public will not suffer in any way from any lack of information due to paucity of numbers. The strength of the Association seemed indeed to have cystallized in the representative character of the sanitarians present, most of whom are very active co-workers, in all sections of the country, in the great cause of public health. The members present from Philadelphia, distant but a hundred miles, were scarcely enough in point of numbers to be counted on the fingers of a single hand. There is naturally

duplication of the subjects treated of at these meetings, although, of course, in different phraseology. Sewerage, drainage, ventilation, —these are the texts on which to base learned disquisitions, and they were apparently amplified almost to the extent of exhaustion of their capability of treatment. These annual gatherings are mainly medical; that is to say, the majority of the papers read emanate from medical men, and most of those present are members of the medical profession. It is desirable to extend the direct influences of this sanitary association among other professions and occupations, and we trust that such co-operation of practical experience and skill may be secured from time to time as will take from the labors of this body the appearance of anything like exclusiveness; although this charge can scarcely be laid at its door with absolute truthfulness at a time when so many civil engineers and educated non-medical gentlemen have contributed to it valuable papers on sanitary matters. It seemed to be the common conviction that in the formation of State Boards of Health a very excessive proportion of medical men should not exist, and that, while a majority of such boards should be selected from the ranks of the profession, there should be associated with them men of practical common sense, such as civil engineers and reliable business-men.

The officers of the Association were Dr. J. M. Toner, D.C., President; Dr. Henry Hartshorne, Pa., Vice-President; Dr. John H. Rauch, Ill., Treasurer; Dr. Elisha Harris, N. Y., Secretary. Dr. Toner, in his opening address, urged the importance of developing and leading popular sentiment, rather than of forcing upon communities sanitary laws that might be at the first blush repulsive; and such seemed to be the view held by most of the speakers, although it was believed by some that the best way to awaken a public sentiment was to create State and local sanitary boards at the very outset. The Secretary's report on the labors of this kind accomplished during the year was very satisfactory, although it is rather amusing to note how differently the various States have set about the work of establishing general Boards of Health. In Alabama, the State Medical Society is constituted by act of the Legislature the Board of Health of the State, being the only instance of such grant of powers in the whole country. In California, the State board is composed wholly of physicians, seven in number. In the District of Columbia, the board consists of three physicians and two other citizens,—being somewhat mixed, we believe, in color and medical creed. The new board in Georgia consists of nine members—"physicians of skill and experience"—and four ex-officio members.

If the papers presented by Dr. Henry Hartshorne, of Philadelphia, and Dr. W. C. Van Bibber, of Baltimore, are generally read throughout the country, they will confer much benefit on those who annually make a pilgrimage to the watering-places. The latter will, at least, be led to reflect whether, in many instances, they are not blindly seeking for restoration to health at summer and winter resorts which offer no fitting remedy, either by location or general aptitude, for the ailments from which they are perhaps chronic sufferers. One of these medical gentlemen pointed out the dangers at all these places of contamination of the drinking-water by proximity to cesspools, etc., and of the baneful results of the neglect of ordinary sanitary precautions; the other, in a glance at the two thousand places of resort frequented by five hundred thousand persons annually, indicated which of these were adapted for the special classes of rheumatics, neuralgics, dyspeptics, consumptives, etc.

An important paper on the "Construction of Dwelling-Houses," by Dr. Ezra M. Hunt, of New Jersey, traced the houses we have to dwell in from basement to attic, pointing out defects in sanitary matters at every point, even in the consistence of the bricks and mortar employed by the builder. Life in-doors occupied much of the attention of the Association.

If the papers of Drs. Allan McLane Hamilton, of New York, A. N. Bell, of New York, and D. F. Lincoln, of Boston, in regard to the neglect of the health of children from faulty school-hygiene, both physical and mental, could be diffused among those who have their education in charge, much good might be accomplished. It was urged by one of these gentlemen that every city should have as inspector of schools a medical man, who should devote his entire time to the duties of his office.

The cause of physical exercise in colleges had an enthusiastic advocate in President A. D. White, of Cornell University, who, himself a member of the first American College Crew in 1853 at Yale that ever sent a challenge to another college, thought education incomplete that did not include athletics in its list of studies or accomplishments. He stated that out of two hundred and ninety-four members of Oxford and Cambridge crews, only seventeen have died in forty years, and only seven of these from affections of the heart and lungs, while the average of London deaths from these diseases would, out of that number, be forty-six.

Carl Pfeiffer, of New York, read a paper to prove the insufficiency of natural ventilation in the spring, summer, and autumn seasons, and to advocate the necessity of mechanical ventilation; and Dr. Thaddeus M. Stevens, of Indiana, thought that a simple and certain method of purification of drinking-water, especially for cisterns containing rain-water, within the reach of all, would be found by filtration through burnt brick; a chamber being built with the brick laid in cement, but

left free on the surface, the water to flow from without into the chamber, and then to be pumped out.

More than one writer alluded to the actual pecuniary cost of neglect of sanitary precautions. Dr. Benjamin Lee, of Philadelphia, showed, by minute calculations, how much Philadelphia suffered in pocket from the epidemic of smallpox which visited it in 1871–72, and how much of this loss might have been obviated by proper preliminary sanitation. The Board of Health alone spent over fifty-six thousand dollars for extraordinary expenses; one city passenger railway cited carried one hundred and twelve thousand two hundred and seventy-two persons less than usual; hotel-keepers, retail dealers, and others, suffered to the extent of thousands of dollars; and by adding loss of valuable time by sickness, expense of nursing, medicines, loss by death, etc., losses of merchants, manufacturers, etc., the actual cost of this single epidemic is placed at the magnificent total of over twenty-five million dollars.

In a similarly statistical spirit, Dr. Hitchcock, President of the Michigan State Board of Health, showed that the distilled liquors manufactured in the United States in one year (1871) averaged twelve gallons, and the retail sales of liquor-dealers forty-eight dollars, to each man, woman, and child; that of the whole number of insane, thirty-seven thousand in all, more than twenty-two thousand were more or less directly caused by alcohol.

Medical topography received very satisfactory attention in the presentation of papers by Dr. J. S. Billings, U.S. Army, and Gen. E. L. Vielé. The army reports furnished by medical officers at posts have hitherto given the best data on this subject. Schedules were prepared by the committee, of which Dr. B. is chairman, for general distribution to all towns of over five thousand inhabitants, including inquiries into location, population, quarantine, health laws, drainage, etc., etc., and the following committee was appointed to carry the matter into full effect: Dr. E. Harris, Chairman; Drs. E. M. Hunt, H. B. Baker, J. H. Rauch, Jas. A. Stewart, C. B. White, T. M. Logan, J. S. Billings, P. H. Brown, J. M. Toner, and J. M. Woodworth. Gen. Vielé pointed out the difference between sewerage and drainage, and advocated the employment of the pneumatic system in vogue at the Hague. Dr. H. R. Noel, of Baltimore, cited instances of numerous cases of sickness in the same family clearly traceable to emanations from sewers. Dr. Elisha Harris made valuable suggestions as to the extension of the benefits of general vaccination. Dr. Franklin B. Hough read an interesting paper on the hygienic influence of forests, and their effects in modifying temperature, moisture, electrical conditions, etc., and thus improving or impairing the public health. The evil influences of great cities as causes of disease were dwelt upon at one of the evening sessions of the Association by Prof. Stephen Smith, M.D., of New York, and Frank Donaldson, M.D., of Baltimore, the latter referring particularly to their agency as promoters of pulmonary consumption.

Among the novelties of the session was a plan for the utilization of animal and vegetable refuse matters of New York, suggested by Jackson S. Schultz, of that city. He proposes to set apart one of the islands in Long Island Sound as a depository of all the refuse matter, garbage, etc., from the hotels and dwelling-houses in New York City. On this island it is suggested to place a sufficient number of swine to consume all the offal, and to erect adequate buildings and sheds for their protection. The labor is to be done by such able-bodied paupers as are now idle in charitable institutions. He further proposes to convert all dead animals and animals' offal into food for the swine on this island.

We have thus hastily and briefly referred to some of the papers presented at this meeting; others are equally important and quite as worthy of mention. These are the addresses and papers of Prof. Henry Coppée, LL.D., on "Health Subjectively Considered;" of D. B. Eaton, LL.D., on "Sanitary Administration;" of Prof. E. Lloyd Howard, on "Legislation upon Sanitary Matters;" of Prof. R. C. Kedzie, on "The Use of Poisons in Agriculture;" of Prof. E. W. Claypole, on the "Popularization of Sanitary Science;" of Prof. Law, on "Hereditary Entailments in Domestic Animals and the Human Family;" of Dr. L. H. Steiner, on "Am I My Brother's Keeper?"; of Frank Hambleton, C.E., on "Sanitary Engineering;" of Drs. G. M. Sternberg and Harvey Brown, on "Yellow Fever in Florida;" and many other papers of practical moment. Several were read only by title.

There was an insufficiency of discussion at this meeting, probably due to the comparatively small number of members present. We hope this deficiency will be remedied hereafter, and that the infusion of so many new members will have a happy and enlivening influence. The programme of papers to be read seemed so extended, as detailed in the circular placed in the hands of members, that it appeared to awe them into almost unbroken silence, lest there should not be ample time afforded to listen to the mass of written information to be imparted by learned sanitarians. Very little other business was transacted. The following delegates were appointed to the International Medical Congress to meet in Philadelphia, September, 1876: Dr. J. M. Toner, D.C.; Dr. C. F. Folsom, Mass.; Dr. J. S. Billings, U.S.A.; Prof. Stephen Smith, M.D., N.Y.; Dr. C. H. White, La.; Hon. F. G. Thomas, M.D., Ga.; Dr. R. C. Kedzie, Mich.; Dr. J. A. Steuart, Md.; Dr. T. M. Logan, Cal.; Dr. H. A. Johnson, Ill.

The officers elected for 1875–6 are the following: President, E. M. Snow, M.D., of Providence, R.I.; First Vice-President, J. H. Rauch, M.D., of Chicago, Ill.; Second Vice-President, Prof. F. A. Walker, LL.D., of Yale College; Treasurer, J. Foster Jenkins, M.D., of Yonkers, N.Y. Executive Committee, Hon. A. W. Boardman, President of Board of Health, Boston; J. S. Billings, M.D., U.S.A.; J. M. Woodworth, M.D., Supervising Surgeon Marine Hospital Service; L. H. Steiner, M.D., of Md.; Ezra M. Hunt, M.D., of N.J., and Jackson S. Schultz, Esq., of N.Y.

The Association adjourned to meet at Boston in November, 1876. R. J. D.

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HADDONFIELD, NEW JERSEY.

TO THE EDITOR OF THE PHILA. MEDICAL TIMES:

THE profession in our State have been very much interested in reading the numerous articles in your excellent journal on the subject of State examining boards.

We once had in New Jersey just such a law as is now proposed, enacted before the advent of medical colleges in this country; according to which, no one was allowed to practise medicine in the State, unless examined and licensed by an examining board, and that board was selected by our State Medical Society. After a time came the graduates from the University of Pennsylvania, then from the Jefferson and other regular colleges, demanding a license without an examination. This, after a struggle, had to be conceded. Then the irregulars secured a law which legalized the practice of medicine by any one who should register a diploma of any corporate medical school, with the clerk of the county in which he wished to locate. Thus the original law became a dead letter; and finally, ten years ago, the New Jersey State Medical Society, finding it impracticable to execute it, concluded to obtain a new charter and relinquish this exclusive authority, although they still have power to grant licenses.

Now, in our State there are no medical colleges either to oppose or assist in the procurement of another law to appoint an examining board. Therefore, if the profession seek now for legislation of this kind, they must ask to have the examiners named by the State Society, the only regular medical association here,—a thing that, only a decade ago, they agreed was impolitic and impossible; or else, either have them appointed and selected by the civil authorities, or combine with the irregulars, as suggested in your journal. By these latter modes we shall be brought face to face with a very grave question of professional etiquette, viz., the recognition of irregular practitioners. For if we acquiesce in either of them, we cannot consistently affirm that those men who have successfully passed their examinations are ignorant, although they may not have a regular diploma; and I think it must be acknowledged that the only argument the regular profession can successfully maintain against intelligent criticism from the unprofessional world, as to why we refuse to have professional intercourse with them, is that they are ignorant, and therefore are dangerous impostors.

In plain words, we, in order to obtain in our State strict and efficient legal supervision over the practice of medicine, such as is extended over the legal profession, and shortly to be given to the trade or profession of pharmacy, must make up our minds to stand upon the broad ground of thorough education, carefully and strictly tested by examination, and not to ask the applicant for professional association, Where did you graduate? or, What do you give, and how do you give it? but, Do you *know* enough of science to approach the sick-bed and administer safe and efficient remedies? JOHN R. STEVENSON.

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PHILADELPHIA, December 2, 1875.

TO THE EDITOR OF THE PHILA. MEDICAL TIMES:

DEAR SIR,—I was much surprised, some time since, to learn that it was thought necessary, by a few gentlemen of some standing both in and out of our profession, to establish in this city a charity for the especial benefit of persons suffering from diseases of the rectum and anus.

There are at present in Philadelphia twelve general hospitals, and seven general dispensaries. Does any one know of any instance in which these have failed to meet the requirements of any case of rectal disease presenting itself for treatment? Is there any necessity for peculiar arrangement of wards, beds, light, operative facilities, or apparatus not to be had in any well-ordered hospital, with a view to the thorough exploration and successful treatment of rectal diseases? If so, it is unknown to me.

I honestly declare that I believe there is as much need for a charity which shall deal exclusively with affections of the foot or the fore-arm, as for one devoted to those of the rectum. Such schemes bear very much the aspect of bids for practice on the part of the professional men engaged in them; and I am not alone in my objection to that about which I now write to inquire; for, not having heard anything for some time of the institution for rectal diseases, I am led to hope that its promoters have seen that it should not have been started, and have allowed the project to die a natural death.

A few years ago, a specialist was looked upon as a quack by many, even by a large majority, of the best men in our procession. Time has changed all this, as regards certain departments of medicine and surgery which require the exclusive attention of those who would practise in them with profit to themselves and to the greatest advantage for their patients. But it is not yet, and it is to

be hoped it never will be, in order for specialties to be carved out: they are only allowable when they are developed by a pre-existing demand. If such a demand exists for a hospital or dispensary for diseases of the rectum and anus, no doubt the profession and the public will alike recognize the propriety of its claims on their encouragement and support. Respectfully yours,

GENERAL SURGEON.

## PROCEEDINGS OF SOCIETIES.

### PATHOLOGICAL SOCIETY OF PHILADELPHIA.

THURSDAY EVENING, OCTOBER 14, 1875.

The PRESIDENT, DR. WM. PEPPER, in the chair.

*Obscure pericarditis and double pleurisy in a child.* By Dr. JOHN H. PACKARD.

ISABELLA W., aged 2 years, a very healthy and well-nourished child, was taken sick on the 9th of October, 1875, with what seemed to be abdominal pain. Her mother used some simple household remedies, which gave no relief, and I saw her on the 11th. She was then suffering, to all appearance, from indigestion. A careful examination of the chest disclosed nothing abnormal; her pulse was rapid, but not more so than was in accordance with her febrile condition.

Next day her condition was unchanged, except that there was a rather copious eruption of very minute brown spots on the abdomen, and a few on the neck. In the afternoon she vomited freely, twice, a purplish-brown grumous matter, like altered blood. There was some rigidity of the muscles, especially at the back of the neck, retracting the head; and she complained when moved in any way.

On the 13th she was evidently worse; her respirations were seventy-five in the minute, and, although the temperature of the skin was good, the feet and legs were mottled purple. Her pulse was uncountable; and at 11 A.M. she died. Her intellect was clear throughout.

An *autopsy* was made by Drs. Sinkler and Gerhard, twenty-nine hours after death.

Body very plump and well nourished; no *rigor mortis*.

*Thorax.*—Pericardium distended with serum, and both surfaces thickly coated with yellow lymph, easily stripped off. Slight effusion in each pleura, with long strings of croupous lymph. A large patch of lymph attached the apex of the left lung to the opposed pleural surface posteriorly, and another connected its base to the diaphragm. Both lungs were deeply congested, the left more so than the right.

*Abdomen.*—Liver decidedly enlarged, and showing curious irregular spots of very light-yellow color on its surface, involving the substance beneath. Gall-bladder full of liquid bile. Intestines distended with gas, and here and there much congested in patches. Solitary glands very fully developed. Mesenteric glands enlarged. Spleen rather large, but seemingly healthy. Kidneys normal.

*Case of amputated foot, including the lower third of the leg, preserved free from putrefaction by the use of salicylic acid.* By Dr. C. B. NANCREDE.

Oliver M., aged 8½ years, when returning from school on the afternoon of September 27, 1875, had his right foot badly crushed by the wheels of a coal-car, stripping the skin to the lower third of the leg. I amputated the leg on the evening of the same day. The amputated portion was allowed to remain lying in the sun until twelve o'clock the next day, unprotected, except by a newspaper and some rags wrapped about it. I then rubbed in about a drachm of salicylic acid, dry, and enveloped it in a cloth wrung out of a weak solution of the same. Since that time it has remained exposed to all weathers, hanging out of a window having a southern exposure, without having presented any putrefactive changes.

From this it would seem that in this agent we possess a safe, cheap, inodorous, and effective preservative.

Dr. NANCREDE, in reply to a question of Dr. O'Hara's as to *how* the acid could preserve the deeper tissues, as it was so insoluble, said that he presumed it was dissolved by the neutral sodium phosphate, which is present in every fluid and solid of the body, he believed, except the teeth. The great trouble in using the acid is its difficult solubility, only one part being dissolved by 240 parts of water. By the addition, however, of two parts of sodium phosphate, or one of the sulphites, it is readily dissolved.

Dr. JAMES TYSON said he could understand how the substance dissolved in the serum by aid of its sodium phosphate could reach the deeper-seated tissues in accordance with the ordinary laws of osmosis and diffusion, and that the entire limb should thus be preserved.

Dr. BERTOLET said he had had some experience in the deodorizing and preservative properties of this substance. He had, during the hot months of last summer, placed numerous specimens—among others, portions of a lung much disorganized by phthisis, and exhibiting a strong disposition to decomposition—in an alcoholic solution of salicylic acid, and the effect seemed to be not only to remove the offensive odor, but also to preserve them in a good condition. Specimens kept in salicylic-acid solution (x—xx grs. to $f\frac{\text{ss}}{\text{i}}$) did not assume, upon subsequent immersion in alcohol, the dingy color so noticeable in those treated by chloral hydrate.

Dr. NANCREDE then said that salicylic acid possessed more than three times the antifermentative power of carbolic acid, as shown

by preventing action in yeast, and that it was inodorous, non-poisonous, and non-corrosive, and that he hoped by its use specimens could be preserved macroscopically for a length of time, so that they could be examined microscopically unchanged. The President referred the subject of the preservative properties of salicylic acid to a special committee, consisting of Drs. Nancrede and Tyson.

(To be continued.)

## PHILADELPHIA COUNTY MEDICAL SOCIETY.

The PRESIDENT, DR. GOODELL, in the chair.

AT a conversational meeting, held October 13, 1875, at 8 P.M., in the hall of the College of Physicians, Dr. O. H. ALLIS read a paper on "The Mechanism of the Shoulder-Joint, with some Points of Practical Interest," in which, after touching upon the comparative anatomy of the articulation, and contrasting it with its homologue in the lower extremity, he proceeded to consider its anatomical structure and physiological relations, with special view to the pathological principles involved in the different luxations.

In the discussion which ensued, the following case was related, to bring to notice one of the rare complications of dislocation, by Dr. E. B. SHAPLEIGH. Being called to attend an old lady with her shoulder out of joint, he discovered that there was an axillary dislocation, with the head of the humerus resting upon the ribs, but that the glenoid cavity was filled with a mass which prevented reduction by the ordinary methods. This was found to be a large fatty tumor, which, from its former position immediately behind the axilla, had slipped forward, and now occupied the place where he wished to put the head of the humerus. The assistance of Dr. J. W. Millick was fortunately obtained, who made strong traction upon the arm in a direction upward and outward, while Dr. Shapleigh forced the tumor backward, thus giving the bone an opportunity of slipping into place, and the reduction was readily accomplished.

Dr. GEO. HAMILTON mentioned two cases of dislocation at the shoulder of rather exceptional features. A large and muscular gentleman, of this city, fell headlong from top to bottom of a long, straight, and rather steep stairway, with such force as to drive the head of the humerus to a great distance from the articulation into the axilla. After several efforts, the bone was restored, audibly and sensibly, to its natural position, by means of the heel in the axilla, and the aid, in traction, of two men. The elbow, however, could not be brought within a considerable distance of the body. This fact, in connection with a most inordinate tumefaction of the shoulder, occurring in a very few minutes after the fall, induced Dr. H. to call in Dr. George W. Norris, who, first ascertaining that pulsation existed at the wrist, declared that the swelling surpassed, by far, anything he had ever witnessed, either in public or private practice, and, with characteristic caution and conscientiousness, desired that his colleague, Dr. E. Peace, should see the patient. The consultation resulted in the conclusion that the head of the bone was prevented from coming into perfect contact with the glenoid cavity by some portion of muscular or other fibre, and that unusual extravasation of blood, from great laceration, was the cause of the extraordinary tumefaction. The ensuing discoloration of the integument involved the shoulder, the arm, and ulnar surface of the fore-arm to the fingers, the side of the body down to the ilium, and extended across the back to the opposite side. It did not disappear for many weeks. No permanent inconvenience in using the arm ensued.

In the second case the reduction was effected, as in the former, by placing a heel in the axilla, —for this homely method had, in the experience of Dr. H., proved most useful. The patient, after reposing on the floor for about half an hour, in order to recover from the sickness and exhaustion of venesection and tartar emetic, rendered necessary from previous fruitless efforts at reduction, was raised upon his seat, when it was at once manifest to the eye and touch that the head of the humerus did not occupy the glenoid cavity. The arm was then placed in a sling, and the father of the young man directed to take him to the Pennsylvania Hospital in a day or two, if there was inability to use the limb. This, however, did not occur; and though not thought of at the moment, the fatigue of the muscles, from protracted efforts at reduction, and more especially the prostration of vital force from loss of blood and from the use of tartar emetic, were, doubtless, the efficient agents in permitting the mere weight of the arm to drag the head of the bone temporarily from the glenoid surface of the scapula.

In referring to the comparative anatomy of the articulation, Dr. HARRISON ALLEN remarked that every limb-joint receives fixation from muscles. One of the uses of muscles is to fix joints. The erect position could not be maintained unless the knee-joint was fixed. Muscles crossing joints form a peculiar group. Joints are locks, muscles are keys. The true deltoid has no existence where there is no clavicle, but its fibres are continuous with those of the trapezius. In the evolution of a deltoid, we may say that an inscription is made in the trapezius; when this ossifies, we call it clavicle. Perhaps, from a point of structure, it is best to say that the deltoid belongs, first, to the clavicle, secondly, to the spine of the scapula.

The coraco-brachialis may be considered (in function) as a deeper layer to the clavicular fibres of the deltoid.

Every large muscle may be considered a group of distinctly-specialized bundles. Thus the deltoid may be resolved into three parts, by isolation of function,—the anterior, the middle, and the posterior; the pectoralis major into two,—the clavicular and sternal; the serratus anticus into three,—the upper, middle, and lower bands.

The supra-spinatus muscle is first in importance in keeping the humerus in position. The deltoid comes next. Hence the deltoid may be paralyzed, yet the arm can be raised.

## GLEANINGS FROM EXCHANGES.

SIMPLE TREATMENT FOR CLUB-FOOT (*The Medical Record*, November 20, 1875).—Dr. J. B. Todd reports the case of a boy, aged 17 months, who had complete talipes of both feet, the variety being equino-varus. He operated, dividing the tendo Achillis subcutaneously, and found that the foot could be placed in its natural position. The support was given to the parts by two pieces of lint to fit the bottom and outside of the foot, and the back and outside of the leg up to the upper fourth, joining the foot-piece at an angle of about one hundred degrees. These were well padded, and the heel was brought down into the angle formed by the foot and leg-piece by a many-tail bandage brought over the instep; then the roller was applied.

The feet were dressed each day, and an emollient lotion applied, and five weeks after the operation, when the boy was placed upon his feet, they retained their normal position.

TRACHEOTOMY AS A PRELIMINARY TO EXSECTION OF THE SUPERIOR MAXILLA (*The Medical Record*, November 20, 1875).—Dr. Lewis S. Pilcher recommends the performance of tracheotomy as a preliminary in all operations involving extensively the mucal and nasal cavities, in order to avoid the difficulties arising from incomplete anæsthesia and the dangers of blood entering the larynx. He gives a case in which he employed this method with advantage.

SACCULAR DILATATION OF THE URETHRA; REMOVAL; CURE (*The Lancet*, October 30, 1875).—Mr. Lawson Tait reports the case of a woman, mother of a large family, who had suffered for many years from a protrusion about the size of an egg from the vulva, which was excessively painful. She passed large quantities of fetid pus from the bladder. The protrusion looked like an ordinary cystocele, save that it was quite irreducible, was very hard, and, when firmly pressed, a large quantity of fetid ammoniacal pus escaped from the orifice of the urethra. If this pus got on the fingers it made them smart. The sound readily passed into the cavity of the protrusion from the urethra. It was clearly, therefore, not an ordinary cystocele, but probably a sacculation of the urethra, and the only benefit likely to be obtained was by its removal. She was placed under ether, and the lower half of the protrusion was removed by a cut of the scissors, and this opened into a large cavity lined with thickened corrugated mucous membrane. It had an opening into the urethra large enough to admit a No. 9 or 10 catheter, the opening being situated in the lower wall of the urethra, and about half-way between its orifice and the entrance to the bladder. The whole of the mucous lining of the sac was removed, and the vaginal mucous membrane was closed over the cavity by deep sutures. The wound healed rapidly, and the cure is now complete.

SALICYLIC ACID AS A DRESSING FOR WOUNDS (*Ibid.*).—At a recent meeting of the Clinical Society of London, Mr. Callender reported his experience in the use of salicylic acid as a dressing for wounds. He concludes that it is of value because it is odorless, and because wounds heal under its influence usually without local pain. Above a strength of two per cent. of the acid a solution acts as a local irritant and causes constitutional disturbance. It gives rise to more discharge than carbolic acid does, and its influence on a recent wound is not so efficacious against the occurrence of decomposition as is that of carbolic acid, chloride of zinc, or boracic acid. The repair of the wound is less active and the granulations are more flabby than when other simple or antiseptic dressings are employed. Mr. Callender therefore regards it as inferior to other antiseptic agents now employed.

A CASE OF TYPHOID FEVER WHICH SUDDENLY TERMINATED FATALLY, DURING ITS TREATMENT BY DIGITALIS (*The Practitioner*, November, 1875).—Mr. William Murrell reports a case of typhoid fever, occurring in a girl 10 years of age, which was treated by the administration of digitalis. This drug was given at first in doses of eight grains of the powder every twenty-four hours, and afterwards, as some vomiting ensued, she was given an equivalent dose of the tincture, from nine to twelve minims. On the fourth and fifth days of this treatment the temperature had fallen from 104° to 100°, and the pulse from 130 to 70; the latter was, however, somewhat irregular. During the next week, the same course being pursued, and there being no concurrent complication, the temperature rose, slowly at first, but later quite rapidly, until it had reached a point higher than before the commencement of the treatment,—104.8°. The pulse, however, remained slow and fairly strong, but was very irregular. On the twentieth day of the disease she was seen at 11 A.M., when the temperature was 104°, and the pulse not weak but intermittent; half an hour later, attention was drawn to the patient by a slight gurgling noise; the pupils were widely dilated; the pulse was extremely weak, and could be felt with difficulty at the radials; in three or four minutes the patient was dead.

There were no convulsions. At the autopsy, made thirty-six hours after death, Peyer's glands in the lower third of the small intestines were found to have been inflamed and ulcerated, but there were no signs of perforation; lungs and heart were normal. It may be fairly assumed that the sudden termination of this case was to some extent, if not wholly, dependent upon the cardiac influence exerted by the digitalis, and we may learn practically that, although by means of digitalis we may rescue a patient from the deleterious influences of an excessive rise of temperature, yet its use is not unattended with danger, and during its exhibition death may occur suddenly and unexpectedly, and without a single note of warning.

TREATMENT BY MEANS OF THE STOMACH-PUMP (*The Practitioner*, November, 1875).—Dr. Paul Schliep has treated seventy-four cases of disease of the stomach in nine hundred and eighty-two sittings, with the stomach-pump, and has obtained very satisfactory results. Among these were forty-two cases of gastric catarrh, in which the treatment was very beneficial. In performing the operation the patient must attend carefully to his breathing, must not bite the tube, and must first hold the head backwards, in order that the obstacle presented by the posterior wall of the pharynx may be surmounted, and then forward, in order to convert the projection formed by the bodies of the third and fourth cervical vertebræ into a concavity. Having entered the cardia, which can be recognized by the length to which the tube has passed and by a slight resistance, an effort should be made to see whether any anatomical change has taken place, which may be known by the occurrence of pain, strong resistance to the entrance of the instrument, and perhaps blood mingled with the contents of the stomach when they have been pumped out. He finds that cases of dilatation of the œsophagus above a stricture at the cardia offer the greatest difficulty to the introduction of the sound. The sound having been introduced, Dr. Schliep begins with the injection of several syringefuls of water, at about the temperature of the body, until the patient feels the stomach to be full, or vomiting sets in, after which he carefully extracts the fluid. He does not attach any importance to slight tingling of the contents with blood, and remarks that strong alkaline solutions introduced into the stomach produce general hyperæmia and consequent bloody oozing. In order to remove adherent mucus from the walls of the stomach, he recommends that the patient should be made to execute several movements of vomiting, by tickling the fauces by means of movements of the tube. In other cases, and especially where an ulcer is present, vomiting should be avoided as much as possible. Considerable caution should be exercised in withdrawing the tube, lest portions of the mucous membrane which have been sucked into the holes should be torn away.

Dr. Schliep distinguishes the contents of the stomach in different states, viz.: 1, clear mucus, with neutral reaction, met with in simple chronic catarrh; 2, yellow fluid, with neutral reaction, accompanying catarrhal inflammation of the stomach and duodenum; 3, mixed contents, consisting of undigested food and mucus, with, for the most part, slightly acid reaction; 4, contents in a condition of acid fermentation, occurring in recent inflammatory conditions and ulcer; the prognosis is here good; the removal essentially effects a cure; 5, contents containing abundance of fungi, reaction acid, quantity sometimes extraordinarily great; the regular evacuation of the contents of the stomach greatly tends to reduce the accompanying dilatation; 6, putrescent contents (coffee-ground) often found in cancer of the pylorus with dilatation of the stomach; the quantity is here again very large and the reaction acid; 7, abnormal gaseous contents. Among the remedies used were bicarbonate of sodium, two teaspoonfuls to a wash-basinful of water, potassium permanganate, 1 to 100, carbolic acid, 1 to 40, chloralum, boracic acid, tincture of myrrh, etc. The diet was carefully selected, and food was given only in small quantities at a time.

SUCTION OR ATMOSPHERIC PRESSURE IN HERNIA AND ILEUS (*The American Practitioner*, October, 1875).—Dr. D. M. Lipscount reports two cases of hernia, with apparent invagination and total obstruction of the bowels. In both cases the patients were instantly relieved, after the failure of all other methods, by the application over the abdominal region of an exhausted vessel and its retention there for a few moments.

BROMIDE OF LITHIUM (*The Doctor*, October 1, 1875).—The *Revue de Thérapeutique* gives the following as the result of Dr. Rouband's test of this drug:

1. Bromide of lithium is a drug which has a twofold action.

2. It possesses in a high degree the lithontriptic qualities which are universally recognized in the salts of lithia.

3. It affects reflex sensibility in a more energetic manner than the other bromides, without the unpleasant effects on the heart which the bromide of potassium has.

4. Consequently, it takes its place in the first rank of antilithic and sedative drugs, and its action is especially valuable in cases of the uric acid diathesis which are accompanied by painful phenomena.

OVARIOTOMY IN A GIRL OF THIRTEEN; ADVANTAGEOUS EMPLOYMENT OF THE STOMACH-PUMP (*The Doctor*, October 1, 1875).—The patient had already menstruated for three months when the abdomen began to enlarge. Prof. Koherle diagnosed a multilocular cyst of the right ovary, and operated

about a month ago. A small incision was made, the various cysts were punctured, and the tumor withdrawn without difficulty, as there were no adhesions. All went well until the eighth day, when gastric derangement began, with sour eructations, vomiting of green matters, pulse 120, temperature 103.1°, great thirst, dry skin. By means of the stomach-pump gas was removed from the stomach and water injected. This was repeated at intervals of ten, fifteen, and twenty hours, with the very best results. The patient, after several other complications, such as abscess in both ears, bleeding at the nose, etc., finally made a good recovery.

ANEURISMAL TUMOR OF THE PHARYNX (*The Lancet*, October 30, 1875).—Dr. John J. Barnes reports the case of a female, aged 73, who complains of slight difficulty in swallowing. The throat was found to be natural, with the exception of a small pulsating tumor, situated at the back of the pharynx, between the median line and the right posterior pillar of the fauces, but nearer the latter. It is about an inch in length, and half an inch in width, the upper end being opposite the lower edge of the soft palate. The pulsation of this tumor is entirely arrested by very moderate pressure over the external carotid. Partly, no doubt, from the difficulty of getting a good *point d'appui*, it cannot be arrested completely by such pressure as the patient can bear over the common carotid.

From the extreme ease with which the pulsation is arrested in this case by pressure over the external carotid, it is more likely to be an aneurism of the ascending pharyngeal branch of that artery. The pressure with which one arrests the pulsation may be conveyed through intervening structures to the internal carotid, but the pressure required is so moderate that it seems doubtful whether it would be sufficient to stop the flow through the internal carotid, considering its depth from the surface. There are no pressure-signs; the pupils are equal; there is no alteration of voice; no dyspnœa. The only complaint is of occasional slight discomfort in swallowing, which amounts to very little. There is no evidence of aneurism elsewhere. Considering the age of the patient and the fact that the aneurism is not materially increasing, no operative procedure has been resorted to.

ACNE (*The Doctor*, October 1, 1875).—M. Lailler follows Hebra in the treatment of this troublesome affection. Every evening, for four evenings, the face is smeared over with black soap, and in the morning this is removed with tepid water. Then, during four consecutive days, a warm vapor douche is directed upon the features. Afterwards, the black soap is resumed, then the douches, and so on alternately for a period of six weeks, after which the malady, if not entirely removed, is very sensibly mitigated.—*La Presse Médicale Belge.*

## MISCELLANY.

TO BLEACH SPONGE.—A writer in *Oesten. Zeitschrift f. Pharm.* objects to the use of sulphurous or chlorine gas for bleaching sponges, on the ground that they are prejudicial to the operator and his surroundings. In preference, the sponge should first be soaked in hydrochloric acid to remove chalk, then washed out with water, and steeped for five or ten minutes in a two per cent. solution of potassium or sodium permanganate in water. A deposit of manganese oxide imparts a deep-brown color, which is removed by steeping for one or two minutes in an aqueous solution of oxalic acid (two per cent.) to which a little diluted sulphuric acid has been added. The sponge rapidly whitens, and is finally well washed out with water. A beautifully bleached sponge may be got without any injury to its texture by steeping the manganese-browned article in very dilute sulphuric acid, and repeatedly squeezing out.—*The Laboratory.*

AT the regular meeting of the Board of Trustees, held November 15, 1875, Profs. D. Hayes Agnew and John Neill were elected Attending Surgeons, and Drs. J. L. Ludlow, Joseph G. Richardson, and James V. Patterson were elected Attending Physicians to the Presbyterian Hospital of Philadelphia.

DR. WILLIAM PEPPER has been elected Medical Director of the Centennial Exhibition. His chief duties will be to superintend the hygiene of the establishment, and to organize a medical service to be used for the relief of accidents or sudden sickness.

## OFFICIAL LIST

*OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U.S. ARMY FROM NOVEMBER 21, 1875, TO DECEMBER 4, 1875, INCLUSIVE.*

SWIFT, E., SURGEON.—Assigned to duty as Medical Director, Department of the Gulf. S. O. 238, A. G. O., November 27, 1875.

HUBBARD, V. B., ASSISTANT-SURGEON.—Relieved from duty in Department of the Gulf, to proceed to New York City, and thence report by letter to the Surgeon-General. S. O. 238, c. s., A. G. O.

YEOMANS, A. A., ASSISTANT-SURGEON.—To report to the Commanding General, Department of Texas, for assignment to duty. S. O. 238, c. s., A. G. O.

KING, J. H. T., ASSISTANT-SURGEON.—Assignment to duty in Department of Texas revoked. S. O. 238, c. s., A. G. O.

COWDREY, S. G., ASSISTANT-SURGEON.—Upon arrival at Fort Barrancas, Florida, to report in person at these Headquarters. S. O. 217, Department of the Gulf, November 26, 1875.

TORNEY, G. H., ASSISTANT-SURGEON.—Upon arrival at Key West, Florida, to proceed on same steamer to Fort Barrancas, and thence to New Orleans, reporting in person at these Headquarters. S. O. 217, c. s., Department of the Gulf.

TAYLOR, M. E., ASSISTANT-SURGEON.—Assigned to duty at Colfax, Louisiana. S. O. 217, c. s., Department of the Gulf.

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With the expression of my now confirmed belief that you have produced a limb which will confer inestimable blessings upon your fellow-men for long years to come, and that you must henceforth be counted as one of the grandest benefactors of your age, I cheerfully subscribe myself,

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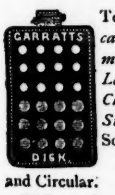


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